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T070433

1. Location of Reading Room:
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2. Expected Release Date:
May 15, 1995

3. Document Type:

[ ] Letter
[ ] Memorandum
[X] Report
[ ] Publication
[ ] Other (Specify)

a. If letter or memo:
To:
From:
Subject:

b. If report:
Title: MONTHLY REPORT ANALYTICAL CHEMISTRY BRANCH - JUNE 21, 1966 - JULY 20, 1966

4. Document Date:
JULY 21, 1966

c. If publication:
Name:
Volume:
Issue:

5. Summary (2-3 lines indicating the major subject(s) of the document): Report on routine analysis of biological samples, water samples, air and dust samples; whole body counts; "Horizontal Rota-Scan Whole-Body Counting" data for the determination of I-131 and Co-60 at different positions in the bodies of two individuals and on different research items and papers published.

6. Name and telephone number of person completing form:	7. Organization:	8. Date:
Anjan K. Majumder (208) 525-0206	Lockheed Idaho Technologies Co.	May, 1995

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HUMAN RADIATION EXPERIMENTS

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FILE TITLE	MONTHLY ACTIVITY REPORT - ANALYTICAL CHEMISTRY BRANCH, JUNE 21, 1966 - JULY 20, 1966
TOTAL PAGES	
BATE NUMBER RANGE	
DOCUMENT NUMBER RANGE	

HEI FORM DOCUMENT NO.: T070246
DOCUMENT NO.: T070433
DOCUMENT TITLE: MONTHLY ACTIVITY REPORT - ANALYTICAL CHEMISTRY BRANCH, JUNE 21, 1966 - JULY 20, 1966
CROSS REFERENCES:
ITEMS OF INTEREST:

John R. Horan, Director
Health and Safety Division

July 21, 1966

Claude W. Sill, Ass't Director for Technology
Health and Safety Division

MONTHLY REPORT - ANALYTICAL CHEMISTRY BRANCH - JUNE 21, 1966 - JULY 20, 1966

HSAC:KRP

ROUTINE

Biological Samples (urine, feces, etc.)	851
Water Samples (potable, effluent, etc.)	157
Air Dusts (carbon cartridges, filters, etc.)	261
Whole-Body Analyses	136

RESEARCH

The initial collection of experimental data by "Horizontal Rota-Scan Whole-Body Counting" for the determination of I 131 and Co 60 at different positions in the bodies of two individuals was accomplished. The problem of handling the signal and high voltage supply to the revolving detector was solved without resort to slip rings.

Calibration data was collected for different counting geometries to be used in computer programs to resolve quantification of gamma spectra.

An initial literature study, equipment test, and design of apparatus for possible anticompton whole-body counting were conducted.

Work progressed on a fluorometric method of analysis for zirconium.

A statistical study on the performance of new alpha scintillation detectors and on the difference between supposedly identical carrier-free alpha sources has been accomplished. Statistical differences were found between the four counters and four samples studied. The analysis of two special tailings samples for Th 227, Th 228, Th 230, Ra 226, Ra 224 and Ra 223 has been completed. For this it was necessary to employ alpha spectrometry in conjunction with gross alpha counting. The application of alpha spectrometry in the analysis of complex mixtures of thorium and radium isotopes proved to be of scientific value.

A multi-parameter 4096 channel analyzer was received and placed in service. A standard procedure to be used for making alpha scans using a 400 channel analyzer has been set up.

SPECIAL ACTIVITIES

A paper on the direct calculation of "in vivo" radioactivity has been completed and will be submitted to HEALTH PHYSICS for publication.

Two Fellowship students received training on various functions of the Analytical Chemistry Branch.

Collins Phil Cannon a physics student from the University of Utah, is spending his second summer assisting in the whole-body counting laboratory.

WHOLE-BODY COUNTING ACTIVITIES

One hundred thirty-six people were counted at the Health and Safety Laboratory as follows: 69 routine, 62 termination and 5 others.

cc: John R. Horan